

# SEQUENCE LISTING

<110> Zhou, Shibin  
Zawel, Leigh  
Vogelstein, Bert  
Kinzler, Kenneth

<120> Human Fast-1 Gene

<130> 01107.10898

<140> 09/113,309

<141> 1998-07-10

<160> 19

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 1793

<212> DNA

<213> Homo sapiens

<400> 1

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| ggaagctcca | cctgatcatg | tcctgggtgg  | atatccagcc  | cccatagttc  | agggcctact | 120  |
| agcagctgct | agatcttgaa | ctccaggagc  | gccccacgcc  | ttgggagctt  | ggcatgggct | 180  |
| aaatactccc | ccatttgta  | aatgggggtcc | tgaaacctga  | ccagggaaga  | cgggataaa  | 240  |
| tagccatggg | tcacgcagc  | ccctttgaag  | ccgggcctgg  | ccacccaaag  | gcaactcagg | 300  |
| ggtggagact | gaggcctcag | gagaagcccc  | cactagaatg  | ctctctgccc  | ctcccttcca | 360  |
| gattaacca  | aacctgctaa | ttgtggaagc  | cctcggcatg  | ctccccctcc  | ccacagcctc | 420  |
| ttctccctt  | ccctccctc  | ccccttccat  | ccgaatgata  | aaggccccag  | cccgcctgcc | 480  |
| ccagccccgc | ctcaggtccc | ggccctgcct  | tctacactgc  | cccaccgccc  | tgcaccctcc | 540  |
| acccggccag | gcccctgccc | acgtgttcta  | ccgtcccgc   | tgggggccctg | cagcggctcc | 600  |
| cgctggggc  | ccccagaggc | agagtcgccc  | tcccagcccc  | ctaagaggag  | gaagaagagg | 660  |
| tacctgcgac | atgacaagcc | cccctacacc  | tacttgcca   | tgatgcctt   | ggtgattcag | 720  |
| gcccctccct | cccgcagact | gaagctggcc  | cagatcatcc  | gtcaggtcca  | ggccgtgttc | 780  |
| cccttcttca | gggaagacta | cgagggtgg   | aaagactcca  | ttcgccacaa  | cctttcctcc | 840  |
| aaccgatgct | tccgcaaggt | gccaaggac   | cctgcaaagc  | cccaggccaa  | gggcaacttc | 900  |
| tgggcggtcg | acgtgagcct | gatcccagct  | gaggcgctcc  | ggctgcagaa  | caccgccttg | 960  |
| tgccggcgct | ggcagaacgg | aggtgcgcgt  | ggagccttcg  | ccaaggacct  | gggcccctac | 1020 |
| gtgctgcacg | gccggccata | ccggccgccc  | agtccccgc   | caccacccag  | tgagggttc  | 1080 |
| agcatcaagt | ccctgctagg | aggggtccggg | gagggggcac  | cctggccggg  | gctagctcca | 1140 |
| cagagcagcc | cagttcctgc | aggcacaggg  | aacagtgggg  | aggaggcggt  | gcccacccca | 1200 |
| ccccttccct | cttctgagag | gcctctgtgg  | cccctctgcc  | cccttccctg  | ccccacgaga | 1260 |
| gtggaggggg | agactgtgca | ggggggagcc  | atcgggccc   | caacctctc   | cccagagcct | 1320 |
| agggcctggc | ctctccactt | actgcagggc  | accgcagttc  | ctgggggacg  | gtccagcggt | 1380 |
| ggacacagg  | cctccctctg | ggggcagctg  | cccacctcct  | acttgccat   | ctacactccc | 1440 |
| aatgtggtaa | tgcccttggc | accaccaccc  | acctcctgtc  | cccagtgtcc  | gtcaaccagc | 1500 |
| cctgcctact | gggggggtgg | ccctgaaacc  | cgagggcccc  | cagggctgct  | ctgcgatcta | 1560 |
| gacgcctct  | tccaaggggt | gccacccaac  | aaaagcatct  | acgacgtttg  | ggtcagccac | 1620 |
| cctcgggacc | tggcggcccc | tggcccaggc  | tggctgctct  | cctggtgcag  | cctgtgaggc | 1680 |
| tcttaagaca | ggggccgctc | ctccctcccc  | ctccaccccc  | caccttggtg  | acagggagca | 1740 |
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<211> 365

<212> PRT

<213> Homo sapiens

<400> 2

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Pro Ser Gln Pro Pro Lys Arg Arg Lys Lys Arg Tyr Leu Arg His Asp  
20 25 30  
Lys Pro Pro Tyr Thr Tyr Leu Ala Met Ile Ala Leu Val Ile Gln Ala  
35 40 45  
Ala Pro Ser Arg Arg Leu Lys Leu Ala Gln Ile Ile Arg Gln Val Gln  
50 55 60  
Ala Val Phe Pro Phe Phe Arg Glu Asp Tyr Glu Gly Trp Lys Asp Ser  
65 70 75 80  
Ile Arg His Asn Leu Ser Ser Asn Arg Cys Phe Arg Lys Val Pro Lys  
85 90 95  
Asp Pro Ala Lys Pro Gln Ala Lys Gly Asn Phe Trp Ala Val Asp Val  
100 105 110  
Ser Leu Ile Pro Ala Glu Ala Leu Arg Leu Gln Asn Thr Ala Leu Cys  
115 120 125  
Arg Arg Trp Gln Asn Gly Gly Ala Arg Gly Ala Phe Ala Lys Asp Leu  
130 135 140  
Gly Pro Tyr Val Leu His Gly Arg Pro Tyr Arg Pro Pro Ser Pro Pro  
145 150 155 160  
Pro Pro Pro Ser Glu Gly Phe Ser Ile Lys Ser Leu Leu Gly Gly Ser  
165 170 175  
Gly Glu Gly Ala Pro Trp Pro Gly Leu Ala Pro Gln Ser Ser Pro Val  
180 185 190  
Pro Ala Gly Thr Gly Asn Ser Gly Glu Glu Ala Val Pro Thr Pro Pro  
195 200 205  
Leu Pro Ser Ser Glu Arg Pro Leu Trp Pro Leu Cys Pro Leu Pro Gly  
210 215 220  
Pro Thr Arg Val Glu Gly Glu Thr Val Gln Gly Gly Ala Ile Gly Pro  
225 230 235 240  
Ser Thr Leu Ser Pro Glu Pro Arg Ala Trp Pro Leu His Leu Leu Gln  
245 250 255  
Gly Thr Ala Val Pro Gly Gly Arg Ser Ser Gly Gly His Arg Ala Ser  
260 265 270  
Leu Trp Gly Gln Leu Pro Thr Ser Tyr Leu Pro Ile Tyr Thr Pro Asn  
275 280 285  
Val Val Met Pro Leu Ala Pro Pro Pro Thr Ser Cys Pro Gln Cys Pro  
290 295 300  
Ser Thr Ser Pro Ala Tyr Trp Gly Val Ala Pro Glu Thr Arg Gly Pro  
305 310 315 320  
Pro Gly Leu Leu Cys Asp Leu Asp Ala Leu Phe Gln Gly Val Pro Pro  
325 330 335  
Asn Lys Ser Ile Tyr Asp Val Trp Val Ser His Pro Arg Asp Leu Ala  
340 345 350  
Ala Pro Gly Pro Gly Trp Leu Leu Ser Trp Cys Ser Leu  
355 360 365

<210> 3

<211> 477

<212> PRT

<213> Homo sapiens

<400> 3

Val Ala Met Ile Asn Ala Cys Ile Asp Ser Met Ser Ser Ile Leu Pro  
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Phe Thr Pro Pro Val Val Lys Arg Leu Leu Gly Trp Lys Lys Ser Ala  
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Gly Gly Ser Gly Gly Ala Gly Gly Gly Glu Gln Asn Gly Gln Glu Glu  
35 40 45  
Lys Trp Cys Glu Lys Ala Val Lys Ser Leu Val Lys Lys Leu Lys Lys  
50 55 60  
Thr Gly Arg Leu Asp Glu Leu Glu Lys Ala Ile Thr Thr Gln Asn Cys  
65 70 75 80  
Asn Thr Lys Cys Val Thr Ile Pro Ser Thr Cys Ser Glu Ile Trp Gly  
85 90 95  
Leu Ser Thr Pro Asn Thr Ile Asp Gln Trp Asp Thr Thr Gly Leu Tyr  
100 105 110  
Ser Phe Ser Glu Gln Thr Arg Ser Leu Asp Gly Arg Leu Gln Val Ser  
115 120 125  
His Arg Lys Gly Leu Pro His Val Ile Tyr Cys Arg Leu Trp Arg Trp  
130 135 140  
Pro Asp Leu His Ser His His Glu Leu Lys Ala Ile Glu Asn Cys Glu  
145 150 155 160  
Tyr Ala Phe Asn Leu Lys Lys Asp Glu Val Cys Val Asn Pro Tyr His  
165 170 175  
Tyr Gln Arg Val Glu Thr Pro Val Leu Pro Pro Val Leu Val Pro Arg  
180 185 190  
His Thr Glu Ile Leu Thr Glu Leu Pro Pro Leu Asp Asp Tyr Thr His  
195 200 205  
Ser Ile Pro Glu Asn Thr Asn Phe Pro Ala Gly Ile Glu Pro Gln Ser  
210 215 220  
Asn Tyr Ile Pro Glu Thr Pro Pro Gly Tyr Ile Ser Glu Asp Gly  
225 230 235 240  
Glu Thr Ser Asp Gln Gln Leu Asn Gln Ser Met Asp Thr Gly Ser Pro  
245 250 255  
Ala Glu Leu Ser Pro Thr Thr Leu Ser Pro Val Asn His Ser Leu Asp  
260 265 270  
Leu Gln Pro Val Thr Tyr Ser Glu Pro Ala Phe Trp Cys Ser Ile Ala  
275 280 285  
Tyr Tyr Glu Leu Asn Gln Arg Val Gly Glu Thr Phe His Ala Ser Gln  
290 295 300  
Pro Ser Leu Thr Val Asp Gly Phe Thr Asp Pro Ser Asn Ser Glu Arg  
305 310 315 320  
Phe Cys Leu Gly Leu Leu Ser Asn Val Asn Arg Asn Ala Thr Val Glu  
325 330 335  
Met Thr Arg Arg His Ile Gly Arg Gly Val Arg Leu Tyr Tyr Ile Gly  
340 345 350  
Gly Glu Val Phe Ala Glu Cys Leu Ser Asp Ser Ala Ile Phe Val Gln  
355 360 365  
Ser Pro Asn Cys Asn Gln Arg Tyr Gly Trp His Pro Ala Thr Val Cys  
370 375 380  
Lys Ile Pro Pro Gly Cys Asn Leu Lys Ile Phe Asn Asn Gln Glu Phe  
385 390 395 400  
Ala Ala Leu Leu Ala Gln Ser Val Asn Gln Gly Phe Glu Ala Val Tyr  
405 410 415  
Gln Leu Thr Arg Met Cys Thr Ile Arg Met Ser Phe Val Lys Gly Trp  
420 425 430  
Gly Ala Glu Tyr Arg Arg Gln Thr Val Thr Ser Thr Pro Cys Trp Ile  
435 440 445  
Glu Leu His Leu Asn Gly Pro Leu Gln Trp Leu Asp Lys Val Leu Thr  
450 455 460  
Gln Met Gly Ser Pro Ser Val Arg Cys Ser Ser Met Ser  
465 470 475

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<210> 5  
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<400> 5  
 ctggaaagac tccattcg 18

<210> 6  
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<400> 6  
 cacagaggcc tctcagaag 19

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 ccccttcca tccgaatg 18

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<400> 9  
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 ggggccctgc agcggtcc 79

<210> 10  
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 <212> DNA  
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<220>  
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 81

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<210> 12  
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<400> 12  
 tatgcgccg cgagctgctg tgctgcagac 30

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<400> 13  
 rymaaya 7

<210> 14  
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<400> 14  
 tagtaaacac tctatcaatt gg 22

<210> 15  
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<400> 15  
 gtccagtatc gtttacagcc 20

<210> 16  
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<400> 16  
 cggattgtgt attggctgta c 21

<210> 17  
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<400> 17  
 cggattctgt atcggtgta c 21

<210> 18  
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55

<210> 19  
 <211> 518  
 <212> PRT  
 <213> Xenopus laevis

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 Tyr Glu Ser Val Glu Pro Pro Ser Leu Ala Leu Leu Ser Ser Ile Asp  
 20 25 30  
 Gln Glu Gln Leu Pro Val Ala Thr Gly Gln Ser Tyr Asn His Ser Val  
 35 40 45  
 Gln Pro Trp Pro Gln Pro Trp Pro Pro Leu Ser Leu Tyr Arg Glu Gly  
 50 55 60  
 Gly Thr Trp Ser Pro Asp Arg Gly Ser Met Tyr Gly Leu Ser Pro Gly  
 65 70 75 80  
 Thr His Glu Gly Ser Cys Thr His Thr His Glu Gly Pro Lys Asp Ser  
 85 90 95  
 Met Ala Gly Asp His Thr Arg Ser Arg Lys Ser Lys Lys Lys Asn Tyr  
 100 105 110  
 His Arg Tyr Tyr Lys Pro Pro Tyr Ser Tyr Leu Ala Met Ile Ala Leu  
 115 120 125  
 Val Ile Gln Asn Ser Pro Glu Lys Arg Leu Lys Leu Ser Gln Ile Leu  
 130 135 140  
 Lys Glu Val Ser Thr Leu Phe Pro Phe Phe Asn Gly Asp Tyr Met Gly  
 145 150 155 160  
 Trp Lys Asp Ser Ile Arg His Asn Leu Ser Ser Ser Asp Cys Phe Lys  
 165 170 175  
 Lys Ile Leu Lys Asp Pro Gly Lys Pro Gln Ala Lys Gly Asn Phe Trp  
 180 185 190  
 Thr Val Asp Val Ser Arg Ile Pro Leu Asp Ala Met Lys Leu Gln Asn  
 195 200 205  
 Thr Ala Leu Thr Arg Gly Gly Ser Asp Tyr Phe Val Gln Asp Leu Ala  
 210 215 220  
 Pro Tyr Ile Leu His Asn Tyr Lys Tyr Glu His Asn Ala Gly Ala Tyr  
 225 230 235 240  
 Gly His Gln Met Pro Pro Ser His Ala Arg Ser Leu Ser Leu Ala Glu  
 245 250 255  
 Asp Ser Gln Gln Thr Asn Thr Gly Gly Lys Leu Asn Thr Ser Phe Met  
 260 265 270  
 Ile Asp Ser Leu Leu His Asp Leu Gln Glu Val Asp Leu Pro Asp Ala  
 275 280 285  
 Ser Arg Asn Leu Glu Asn Gln Arg Ile Ser Pro Ala Val Ala Met Asn  
 290 295 300  
 Asn Met Trp Ser Ser Ala Pro Leu Leu Tyr Thr His Ser Lys Pro Thr  
 305 310 315 320  
 Arg Asn Ala Arg Ser Pro Gly Leu Ser Thr Ile His Ser Thr Tyr Ser  
 325 330 335  
 Ser Ser Ser Ser Ser Ile Ser Thr Ile Ser Pro Val Gly Phe Gln Lys  
 340 345 350  
 Glu Gln Glu Lys Ser Gly Arg Gln Thr Gln Arg Val Gly His Pro Ile

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|     |     | 355 |     |     |     | 360 |     |     |     | 365 |     |     |     |     |     |  |  |  |  |
| Lys | Arg | Ser | Arg | Glu | Asp | Asp | Asp | Cys | Ser | Thr | Thr | Ser | Ser | Asp | Pro |  |  |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |  |  |
| Asp | Thr | Gly | Asn | Tyr | Ser | Pro | Ile | Glu | Pro | Pro | Lys | Lys | Met | Pro | Leu |  |  |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |  |  |
| Leu | Ser | Leu | Asp | Leu | Pro | Thr | Ser | Tyr | Thr | Lys | Ser | Val | Ala | Pro | Asn |  |  |  |  |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |  |  |  |  |
| Val | Val | Ala | Pro | Pro | Ser | Val | Leu | Pro | Phe | Phe | His | Phe | Pro | Arg | Phe |  |  |  |  |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     | 430 |     |     |     |  |  |  |  |
| Thr | Tyr | Tyr | Asn | Tyr | Gly | Pro | Ser | Pro | Tyr | Met | Thr | Pro | Pro | Tyr | Trp |  |  |  |  |
|     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     |  |  |  |  |
| Gly | Phe | Pro | His | Pro | Thr | Asn | Ser | Gly | Gly | Asp | Ser | Pro | Arg | Gly | Pro |  |  |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     | 460 |     |     |     |     |     |  |  |  |  |
| Gln | Ser | Pro | Leu | Asp | Leu | Asp | Asn | Met | Leu | Arg | Ala | Met | Pro | Pro | Asn |  |  |  |  |
| 465 |     |     |     | 470 |     |     |     |     |     | 475 |     |     |     | 480 |     |  |  |  |  |
| Lys | Ser | Val | Phe | Asp | Val | Leu | Thr | Ser | His | Pro | Gly | Asp | Leu | Val | His |  |  |  |  |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     | 495 |     |     |     |  |  |  |  |
| Pro | Ser | Phe | Leu | Ser | Gln | Cys | Leu | Gly | Ser | Ser | Gly | Ser | Pro | Tyr | Pro |  |  |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |  |  |
| Ser | Arg | Gln | Gly | Leu | Met |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|     |     | 515 |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |

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